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ABSTRACT

Approximately 4,000 children took part in a study of the reading attainments of children from different social-class backgrounds in Irish primary schools to find cut if the progessive reading gap between children from different home backgrounds that has been observed in other countries could also be found in Irish school children. Tests were administered to every child in selected schools at four grade levels at yearly intervals from 1973 to 1977. The results indicated that for each grade at each time of testing the rank order of mean reading scores was always the same: group one, the children of professionals, white collar workers, and owners of large farms, consistently earned the highest mean score. Next, came group two, the children of skilled workers. Children of unskilled workers, owners of small farms, and the unemployed were always in third place. Some evidence existed for a progressively widening reading gap between social class groups in Ireland, although the effects were not large. (MKM)

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READING ATTAINMENT IN IRISH PRIMARY SCHOOLS - A PROGRESSIVE ACHIEVEMENT GAP?

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Introduction:

The term "progressive achievement gap" refers to the situation where two or more groups of individuals exhibit progressively greater differences in achievement with the passage of time. This achievement gap can be conceptualized in both absolute and relative terms. When achievement is measured in absolute terms such as raw-score units, grade equivalents or objectives mastered the gap between group achievements may be considered to be absolute. When, however, achievement is measured in deviation units from the achievement of a norming population, the gap may be considered relative. It is the absolute achievement gap which is most evident to teachers and parents, since this is measured in units of achievement. However statistically speaking a more informative basis for comparing the achievement differences of various subgroups of the school population is in terms of the relative differences between them.

Children in the primary school population may be classified into subgroups on the basis of many different criteria. One criterion for classification which has been consistently shown to relate to academic achievement is the socioeconomic status of the home background. There is considerable evidence that children from less advantaged home backgrounds do not reach the same heights of academic attainment as their more advantaged peers. What is less certain is whether this gap between the attainments of children of different home background, which is visible from an early age, increases, remains constant or decreases over the period of primary schooling. The purpose of this

study is to determine whether a progressive achievement gap exists between the English and Irish reading attainments of children from different backgrounds in a sample of Irish primary schools.

Most of the literature pertains to research carried out in the United States and in Britain. In the United States studies of home background factors often take second place to studies of racial or ethnic differences. There are a very large number of studies of Negro-White differences in attainment (Dreger & Miller 1960; 1968) which would appear at first glance to be of little relevance to the Irish situation. Such studies may not be entirely irrelevant, however, since racial differences very often subsume very significant socioeconomic differences also.

The work of Deutsch and his associates (Deutsch et al., 1967) with disadvantaged children has done much to popularize the notion of a progressive gap in cognitive attainment between children from more and less advantaged backgrounds. Working with both black and white children of varying social class backgrounds, Deutsch et al have observed a progressive decline in the cognitive performance of the less advantaged children relative to their more advantaged peers over the period of first to fifth grade. This decline was more noticeable for verbally oriented skills such as reading and vocabulary than for non verbal abilities. Deutsch and his associates hypothesize an underlying process of "cumulative deficit" to account for the observed progressive decline. The cumulative deficit hypothesis presupposes a hierarchical

arrangement of cognitive attainments, with skills and abilities acquired at an early age forming the foundation upon which later attainment is built. Children who fail to acquire the fundamental skills at an early age are doomed to fall further and further behind their peers, hence the term "cumulative deficit".

The findings of Deutsch et al. are based on a sample of deprived children from a ghetto area. There is also some evidence of a progressive achievement gap between some sections of the more general school-going population. In 1966 Coleman and his associates (Coleman, Campbell, Hobson, McPartland, Wood, Weinfeld and York, 1966) reported the results of a nationwide survey of equality of educational opportunity in the United States. This survey provided extensive data on the comparative academic attainments of the major ethnic and racial groups which make up that society. Except in the Southern regions of the U.S. the Coleman study found a more or less constant difference of approximately one standard deviation (based on whites in the metropolitan Northeast) between blacks and whites in verbal ability and reading comprehension. In other words there was no progressive achievement gap between blacks and whites outside the South. However, in the non-metropolitan South the average back-white difference in reading comprehension increases from 1.2 units in grade 6 to 1.6 units in grade 12. In the non-metropolitan Southwest the difference increases from 1.0 units to 1.4 units from grade 6 to grade 12. This is taken as evidence of a progressive achievement gap in reading comprehension between the blacks of the non-metropolitan South and the whites of the metropolitan Northeast.

Further support for this position comes from a study by Kennedy (1969) of intelligence and achievement of black children in the Southern states. This was a follow-up to an earlier study by Kennedy, Van de Riet and White (1963) which consisted mainly of a standardization of the Stanford-Binet intelligence scale and the California Achievement Tests on a representative sample of Southern black children. In both the original and follow-up studies a clear relationship was noted between the home background of the children, as measured by parental occupation, and intelligence and achievement. This was true despite the fact that the children in the sample were of predominantly low socioeconomic background. More important from the progressive decrement perspective is the fact that the follow-up study showed that performance on the achievement tests, including tests of reading vocabulary and reading comprehension, had declined considerably relative to national norms. This occurred to such an extent that the average achievement level for these black children in the tenth grade was only 7.1 grade equivalents for reading vocabulary and 7.3 for reading comprehension. As well as demonstrating a progressive achievement gap between a sample of black children and a national sample of white children, the Kennedy study illustrates the extent to which racial and socioeconomic characteristics are confounded in the United States.

Arthur Jensen has paid considerable attention to the question of a progressive achievement gap between blacks and whites, although more so in relation to general intelligence than to attainments such as reading. In one study conducted in a Californian school district he did attempt to find evidence of a progressive achievement gap in school

attainment as measured by the Stanford Achievement Tests (Jensen, 1971). This test battery includes subtests covering Word meaning, Paragraph meaning, Spelling, Word study skills and language, as well as several topics in arithmetic.

Jensen compared the attainment of blacks and Mexican-Americans with the attainment of white students in grades one to eight. He found a reliable and systematic increase in the gap between these groups from grade one to grade three, but from grades four to eight the gap remained constant. Jensen noted no such increase on a number of non-verbal intelligence tests which were also administered to these students. He concluded that the progressive achievement gap evident for the achievement tests in the earlier grades was due to the strong verbal loading of these tests, rather than to a progressive decline in general intelligence in the black and Mexican-American groups.

The evidence from American studies is often difficult to interpret in an Irish context since racial and social class factors are so often confounded in these studies. Perhaps more relevant to the situation in this country are the results of a number of British studies which demonstrate a progressive gap between children from different social class backgrounds.

Douglas (1964) reports on a longitudinal study of a national sample of children in England and Wales. The children in this sample were all born during the first week of March, 1946. Over 3,000 of these children were tested for intelligence and attainment at age eight, and again at

age eleven. The attainment tests included tests of reading comprehension and vocabulary at both ages. On the basis of parental occupation the children were classified as belonging to one of four social-class groups: upper middle class, lower middle class, upper manual working class and lower manual working class.

The same pattern of results obtained for both intelligence and attainment tests. At age eight approximately one standard deviation separated the highest (upper middle class) and lowest (lower manual working class). By age eleven the average test scores for the four groups differed even more widely than they did at age eight. There was a tendency for the two middle class groups to come closer together, and to move further away from the working class groups.

A further follow-up study of the same sample of children was reported by Douglas, Ross and Simpson (1968). In the follow-up study the children were retested at age fifteen to see if the earlier trends in social-class differences were maintained. In the case of reading, the social-class groups continued to diverge, although this trend was reversed for non-verbal intelligence. In addition to a third testing for the children from England and Wales, Douglas, Ross and Simpson reported the results of a similar testing program for a comparable sample of Scottish children. In the Scottish sample there is no increase in the difference between groups in reading or vocabulary between ages eight and eleven, but between eleven and fifteen the middle-class pupils move ahead considerably in reading.

The work of Douglas and his associates reveals evidence of a progressive reading deficit between social-class groups in a cohort of

children born in 1946. A second longitudinal study, the National Child Development Study, follows a cohort born over a decade later, in March 1958. Fogelman and Goldstein (1976) used data from this study to examine the hypothesis that mean social-class differences in reading and mathematics attainment increase from age seven to age eleven. The 16,000 children in the study were categorized as belonging to one of three social-class groups: non-manual; skilled and semiskilled-manual; and unskilled manual. Reading attainment was measured by the Southgate reading test (a test of word recognition) at age seven, and by the Watts-Vernon test of reading comprehension at age eleven.

The authors used an analysis of covariance model to examine social-class differences in reading score at age eleven after first controlling for reading score at age seven. Their analyses confirmed the existence of a divergence in reading score between the social classes from age seven to age eleven. At age seven the children whose fathers were in non-manual occupations were 0.9 years ahead of children of skilled and semi-skilled workers in reading attainment. This group were in turn 0.7 years ahead of the children of unskilled workers. By age eleven the gap had increased to 1.9 years between the non-manual group and the skilled and semi-skilled group, and to 1.1 years between this latter group and the unskilled group.

These findings were extended in a study by Fogelman, Goldstein, Essen and Ghodsian (1978). The same cohort of children was tested again at age 16 for attainment in reading and mathematics. This time reading attainment at both age seven and age eleven were controlled in an analysis of covariance before examining social-class differences in reading

attainment at age 16. Their results were in agreement with those of Douglas, Ross and Simpson a decade earlier. Even when attainment at ages seven and eleven are controlled there were significant social-class difference in reading attainment at age 16.

The data from two large-scale longitudinal studies show clear evidence of a progressive reading gap extending from age seven to age sixteen. Corroborating evidence comes from a small-scale study reported by Cox (1979). In this study a sample of 52 children from culturally deprived homes were matched pairwise for age, sex, intelligence and school with a control group of children from more supportive working class backgrounds. Both groups of children were given a battery of attainment tests during their final infant school term (approximate age 7½ years) and again at the late junior school stage, when average age was approximately 11½ years. The Burt Graded Word Reading Test and the Neale Analysis of Reading Ability were administered at both ages, and the Reading Test S.R.A. at the later age only.

Even after controlling for initial group differences on the reading tests by an analysis of covariance, a considerable difference was observed between eleven year scores for the deprived and control groups. Expressed in terms of reading ages the control group gained 4.36 years of reading age over the four-year period on the Burt test, compared to only 2.92 years for the deprived group. Gains were rather less on the Neale test, but there was still a difference of approximately one year between the two groups at age eleven. The author concluded that the achievement gap in reading between the disadvantaged children and their

working class controls widened significantly over the four-year period of junior schooling. The study is significant insofar as it reveals a progressive reading gap between more and less deprived children from broadly similar working class backgrounds.

Although data from Ireland are scarce there is a study in the literature on disadvantaged children by Kellaghan (1977) which is broadly in agreement with that of Cox (1979). The Kellaghan study consists of a report on an evaluation of a preschool intervention program for disadvantaged children in an inner city area of Dublin. A disadvantaged experimental group was compared to disadvantaged and non-disadvantaged control groups on a battery of intellectual, attainment and non-cognitive measures at different times. Of particular interest are the results for reading attainment.

At age six the experimental group alone was administered the Clymer-Barrett Prereading Battery, which is designed to test a child's preparedness for learning to read. Although there was considerable variation within the sample in reading readiness scores, overall the results suggested that average reading performance could be expected from this group in the following years. However, this expectation was not fulfilled. At age eight the Marino Graded Word Reading Scale and a similar test of Irish word recognition Scala Gradaithe sa Gaeilge, were administered to the experimental group and also to the two control groups. Both the disadvantaged experimental and the disadvantaged control groups scored over one standard deviation below the mean of the non-disadvantaged control group on both reading tests.

In the case of the experimental group then a prereading battery at age six predicts normal reading attainment in future years but when reading attainment two years later is actually measured and compared to that of a non-disadvantaged control group a wide discrepancy is apparent. That this discrepancy seems to have emerged during the intervening two-year period may be taken as tentative evidence of a progressive reading deficit in this disadvantaged population.

The Present Study:

The present study is an investigation into the reading attainments of children from different social-class backgrounds in Irish primary schools. The aim of the study is to find out if the progressive reading gap between children from different home backgrounds which has been observed in samples from British populations also obtains in a sample of Irish school children.

METHOD

Sample: The population of Irish national schools,(excluding private, Protestant, special and one-teacher schools) was stratified by location (urban-rural), size, sex, composition and type of administration (religious-lay). Within each stratum, schools were randomly selected. Of 135 selected schools, data for the present study were obtained for 107 schools. Tests were administered to every child in each school at four grade levels (standards 3, 4, 5 and 6). Approximately 4,000 children took part in the study at each grade level.

Dependent Variables:

(Standards 3 and 4)

Drumcondra English Test, Level II, Forms A and B

This test consists of subtests in vocabulary and comprehension. The vocabulary subtest involves matching synonyms, key words being presented in context. The comprehension subtest involves reading a passage and answering questions about it. Scores on the vocabulary and comprehension tests are combined to give a single reading score.

Drumcondra Irish Test, Level II, Forms A and B

This test also has vocabulary and comprehension sections. The vocabulary test involves matching a printed word with a picture, and the comprehension test, like the English one, requires the pupil to read a passage and answer questions about it. Again, vocabulary and comprehension socres are combined to provide a single reading score.

(Standard 5 and 6)

Drumcondra English Test, Level II, Forms A and B

Drumcondra Irish Test, Level III, Forms A and B

Both tests are similar in format to the lower level (Level II) tests in English and Irish.

Independent Variable:

The independent variable was the socio-economic status of the child's home, based on the child's parental occupation. Occupations were assigned to one of seven categories: professional/managerial, white collar, skilled worker, unskilled worker, farmer with more than 50 acres, farmer with less than 50 acres, and unemployed or unknown. In order to simplify the presentation of

results and also to correspond more closely to the categorization used by the British studies, these seven categories were collapsed into three broader groups as follows: professional/managerial, white collar and large farmers were assigned to group one, skilled workers were assigned to group two, and unskilled workers, small farmers and unemployed workers were assigned to group three.

Design:

In general two kinds of data may be used in studies of growth : cross-sectional and longitudinal. Cross-sectional data are obtained from several groups of children of different ages or standards at a single point in time. Longitudinal data, in contrast, are obtained from the same group of children at different times. The longitudinal population is called a 'cohort'. When the sampling unit for a longitudinal study is an intact group such as a school and, in addition, all the children attending the school are tested at each data-collection time, two kinds of longitudinal data are available.

The first is 'unmatched longitudinal data', which includes all children tested at each time. Sample statistics for unmatched longitudinal data are based on all the children who were present in the school at the time of testing whether or not they were in the original sample. The second kind of longitudinal data is called 'matched longitudinal data', and involves only that core of children who have data for all test administrations.

Any growth study attempts to relate change in the dependent variable to change in age of the members of the sample. However a difference in test score from one test period to the next, or between two different age groups tested at the same time need not be due to age changes alone. Hilton and Patrick (1970) have categorized the various sources of difference and their effects on the three types of data as follows.

Fig. 1 Summary of Sources of Difference in Three Types of Data, when Intact School Groups are Tested

	Cross Sectional	Longitudinal Matched	Longitudinal Unmatched
1. Age Difference	x	x	x
2. Time Difference		x	x
3. Cohort Difference	x		
4. Cohort Change	x		x
5. Retest Effect		x	x
6. Selection Effect		x	
7. Equating Error	x	x	x

Age differences due to change in age of the sample from one test period to the next, are the focus of interest of most growth studies, and detectable in all three types of data. Age difference may be distinguished from time difference insofar as time differences are due to events occurring at a given point in time, and affect children of all ages, whereas age difference are due to maturational events and are unrelated to temporal phenomena. Time differences do not affect cross-sectional data, since observations are made at a single point in

time, but can distort inferences based on either kind of longitudinal data. Although cross-sectional data by their nature preclude a time difference, the fact that they include a different group of subjects at each age or standard level implies the possible existence of a cohort difference. This can occur when the population of children from which one sample is drawn is systematically different from the population from which a second sample is drawn. For example, demographic shifts in the population of an area such as an influx of relatively poor young families could change significantly the ability levels of younger cohorts, other things remaining equal.

While immune to cohort difference effects longitudinal data, particularly unmatched longitudinal data, can be subject to a cohort change effect. This occurs in school studies when the successive samples are intact student groups, that is, when each successive sample is composed of all of the children who are enrolled in the school at the time of testing. Between test administrations the cohort will change, due to some children leaving and to others joining the school for the first time. This net change in the composition of the cohort can result in mean score changes - changes which are neither age changes nor time changes.

A further source of difference which affects longitudinal but not cross-sectional data is the retest or practice effect. When tests are repeatedly administered to the same children their scores may be affected either for the better, due to a facilitating practice effect, or for the worse, because of boredom or hostility.

Generally in growth studies the preferred type of data is what we have called matched longitudinal data, since this alone permits correlational analyses at the level of the individual child. However, by definition this kind of data requires complete information from all testing sessions, and this can result in loss of a considerable number of cases. In addition, if the children with missing data tend to be those who are frequently absent because of illness or truancy, the loss is surely non-random. Differences due to such losses are called selection effects.

A final source of error which affects all three data types is equating error. This occurs when one sample is given one form of a test and another sample is given an alternate form or a vertically equated form of the same test. Differences in test scores may be affected by errors in the equating procedure.

While any one type of data is vulnerable to one or more sources of error, the comparison of results based on all three data types permits a check on the magnitude of such error and consequently allows stronger inferences to be made. The present study makes use of a combination cross-sectional-longitudinal design to achieve the three data types already discussed. In this study the sampling unit was the individual school, and within a school all children in all classes at each grade level were tested. The children in the study were divided into cohorts on the basis of their grade level in the first year of testing. There were four cohorts in all : Cohort 3 consisted of all children in standard 3 in the first year of testing, Cohort 4 consisted of all children in standard 4, and similarly Cohort 5 for standard 5 and Cohort 6 for standard 6. There were five test sessions at approximately

yearly intervals. The first was during the winter of 1973-74, and the last was during the summer of 1977. Table 3 illustrates the layout of the data, and shows the number of children present for

Insert Table 3 about here

each testing session. Cohorts may be identified in Table 3 by following the table diagonally from lower left to upper right.

For example the children in Cohort 3 were in standard 3 in winter '73-74, in standard 4 in autumn '74, in standard 5 in autumn '76 and in standard 6 in '77. Cross-sectional comparisons are made by comparing cells of the table vertically, i.e., standard 3 in winter 73-74 with standards 4, 5 or 6 in the same year. Longitudinal comparisons are made by working diagonally across the table, i.e., standards 3 in winter 73-74 with standard 4 in autumn '74, or standard 5 in autumn '75 or standard 6 in autumn or summer '77.

Results:

The data analysis was carried out in two stages. In the first stage the mean reading scores for each social class group were computed from cross-sectional, unmatched longitudinal and matched longitudinal data and compared and contrasted in order to assess the magnitude of the various sources of error discussed earlier. In the second stage an analysis of covariance model was used to assess the effect of home background on reading attainment at a given time having first controlled for reading attainment differences at an earlier time.

The aim of both stages was to discover increasing differences between the social-class groups over time.

Stage 1:

For each standard at each time of testing the rank order of the mean reading scores was always the same. Group one, the professional - white collar - large farmer group consistently earned the highest mean score. Next came group two, the skilled worker group. The unskilled worker - small farmer - unemployed group were always in third place. The difference between the highest and lowest mean scores varied between one half to two-thirds of a standard deviation. Since the rank ordering of the group mean was always the same the size of the group means can be conveniently expressed as the difference between them.

In Fig. 2 this difference has been plotted for each data type for Cohorts 3, 4, 5 and 6 for English reading. Fig. 3 contains similar plots for Irish reading. Looking first at the graph for English reading, and concentrating on Cohort 3 since this cohort had most testing sessions, it is evident that the differences are very similar for cross-sectional and unmatched longitudinal data, but that the matched longitudinal data follow a slightly different trend.

If the cross-sectional and unmatched longitudinal data can be taken as equivalent (then referring back to the sources of differences described in Fig. 1) it is possible to make some inferences about the adequacy of the data for investigating the hypothesis of a progressive reading gap. If two different data types control for different sources of error, and yet give similar results it is safe to say that the sources of error do not play a significant role in determining these results.

As a case in point, cross-sectional data do not permit errors due to time differences, whereas unmatched longitudinal data do. However, since computations based on either data type give the same results in this instance, the implication is that time differences are not important here. Similar conclusions can be drawn about errors due to cohort difference and retest effects. This leaves only cohort change effects or selection effects to explain the discrepancy between the results based on matched longitudinal data and the results from the other two data types.

To conclude that the discrepancy is due to cohort change effects is tantamount to saying that the same cohort changes affected both the cross-sectional and unmatched longitudinal data in the same way, which seems unlikely. A more plausible explanation is that the discrepancy is due to a selection effect, whereby the requirement of complete data for the matched longitudinal data set resulted in the nonrandom elimination of a large number of cases. This explanation seems all the more likely since the discrepancy between the matched longitudinal and other data is greatest in Cohort 3 which has the greatest number of testing sessions and consequently the smallest number of completely matched cases.

The apparent existence of this selection effect has unfortunate implications for the aims of the present study. It was hoped that the matched longitudinal data would not be untypical of the other two data types, thus permitting the investigation of the progressive reading gap hypothesis on this data set alone. However, particularly for English reading in Cohort 3, the matched longitudinal data differs from the other two data types in a manner which directly confounds the interpretation of a progressive difference effect. This means that any evidence of a progressively widening gap in reading attainment between

social class groups is open to an interpretation in terms of spurious selection effects.

Stage 2:

In stage 1 of the analysis it was observed that a substantial gap exists between the reading attainments of the three social-class groups at each time of testing. The question now is whether the size of this gap at a given time is interpretable in terms of pre-existing group differences, or whether there has been a progressive widening of the gap during the intervening time period. One approach to this problem is by means of an analysis of covariance. Using this method differences between groups on reading attainment at times 2, 3, 4 and 5 can be examined after first adjusting for differences in reading attainment at time 1. If the adjusted mean scores are significantly different, then there is evidence of a progressive reading gap between the groups.

For both Irish and English reading a separate covariance analysis was carried out for each cohort at each standard. Thus for Cohort 3 there were four analyses, with standard 3 at time 1 as the covariate and standard 4 at time 2, standard 5 at time 3, standard 6 (autumn) at time 4 and standard 6 (summer) at time 5 respectively as dependent variables. Similarly for Cohort 4 there were two analyses, using standard 5 at time 2 and standard 6 at time 3 as dependent variables, and for Cohort 5 there was one analysis, using standard 6 at time 2 as dependent variable. The results of these analyses are summarized in table 4 for both English and Irish attainment.

Insert Table 4 about here

For each analysis the table shows the percentage of variance in the dependent variable that is attributable to the covariate (reading attainment at time 1), the independent variable (social-class group), and to the interaction between them. In no case was the interaction between the covariate and the independent variable significant, which implies that the regression line of the dependent variable on the covariate has the same slope for each social-class group. When the independent variable is adjusted for the covariate it reaches significance only in Cohort 3. In the case of English reading the effect is significant at time 3, time 4 and time 5, while for Irish reading the effect is significant at times 4 and 5 only. It is worth noting that the percentage of variance in the dependent variable which is attributable to the adjusted independent variable increases as the time interval between covariate and dependent variable is extended. In both English and Irish analyses the effect is largest when reading attainment at time 5 is the dependent variable. In this case the interval between covariate and dependent variable is 4½ years.

Insert Table 5 about here.

Table 5 shows the significant results in more detail. For each analysis the table shows the adjusted group mean, expressed as a deviation from the grand mean. It can be seen from the table that the range of differences between highest and lowest group means increases with the length of time between testings.

Discussion:

This study has presented some evidence for a progressive reading gap in both English and Irish reading between social-class groups. The effects are not large. When the groups are statistically equated at one point in time it takes at least a three year period for the differences to re-emerge to a significant degree. In addition, a comparison of results from three types of data (cross-sectional, unmatched longitudinal and matched longitudinal) implies that the observed differences may be due in part to a selection effect operating on the matched longitudinal data.

A comparison of the present results with the findings of Goldstein and Fogelman of the National Child Development Study in Britain may prove informative. These authors found evidence of a progressive reading difference between social-class groups from the age of seven to the age of eleven. Over this four-year period the gap between the highest and lowest group increased from 1.4 years of reading age to 3.0 years of reading age. In the present study a comparable time period is involved in analyses which examined differences in reading attainment at time 5, having adjusted for differences at time 1.

In the case of English reading the gap between lowest and highest groups increased from 5.1 standard score points at time 1 to 9.2 standard score points at time 5. For Irish reading the gap increased from 5.6 points to 10.5 points. Since the Drumcondra Attainment Tests were standardized by grade rather than by age, there is no firm basis for converting standard score points to reading ages. However a very rough estimate based on a regression analysis is that one standard score point is approximately equal to one month of reading age. If this approximation

is accurate we have, for a comparable time period, a gap of 5 to 9 months of reading age in Ireland compared to a gap of 12 to 36 months reading age in Britain. Even allowing for inaccuracies in the score conversion process it does seem that the progressive reading gap is more extensive in Britain than in Ireland.

This difference may be partly due to differences in the sampling strategy employed by the two studies. The British sample consisted of an age cohort, all children born in a particular week, whereas the Irish sample was a grade cohort - all children in a particular grade or standard in school at a particular time. For this reason the Irish sample could be expected to show smaller social-class group differences because of two factors. In the first place the Irish sample excluded Protestant, private, and special schools, thereby restricting the range of social-class distribution somewhat. Secondly the use of reading ages is probably more appropriate for an age sample than for a grade sample, since retention practices in schools can easily result in a negative correlation between age and reading ability at a given standard.

In conclusion, this study has succeeded in part in replicating British findings of a progressive reading gap between children from different social-class backgrounds. The nature of the mechanism by which this effect operates must await further study. Of particular interest for future research is the effectiveness of the school in closing this reading gap.

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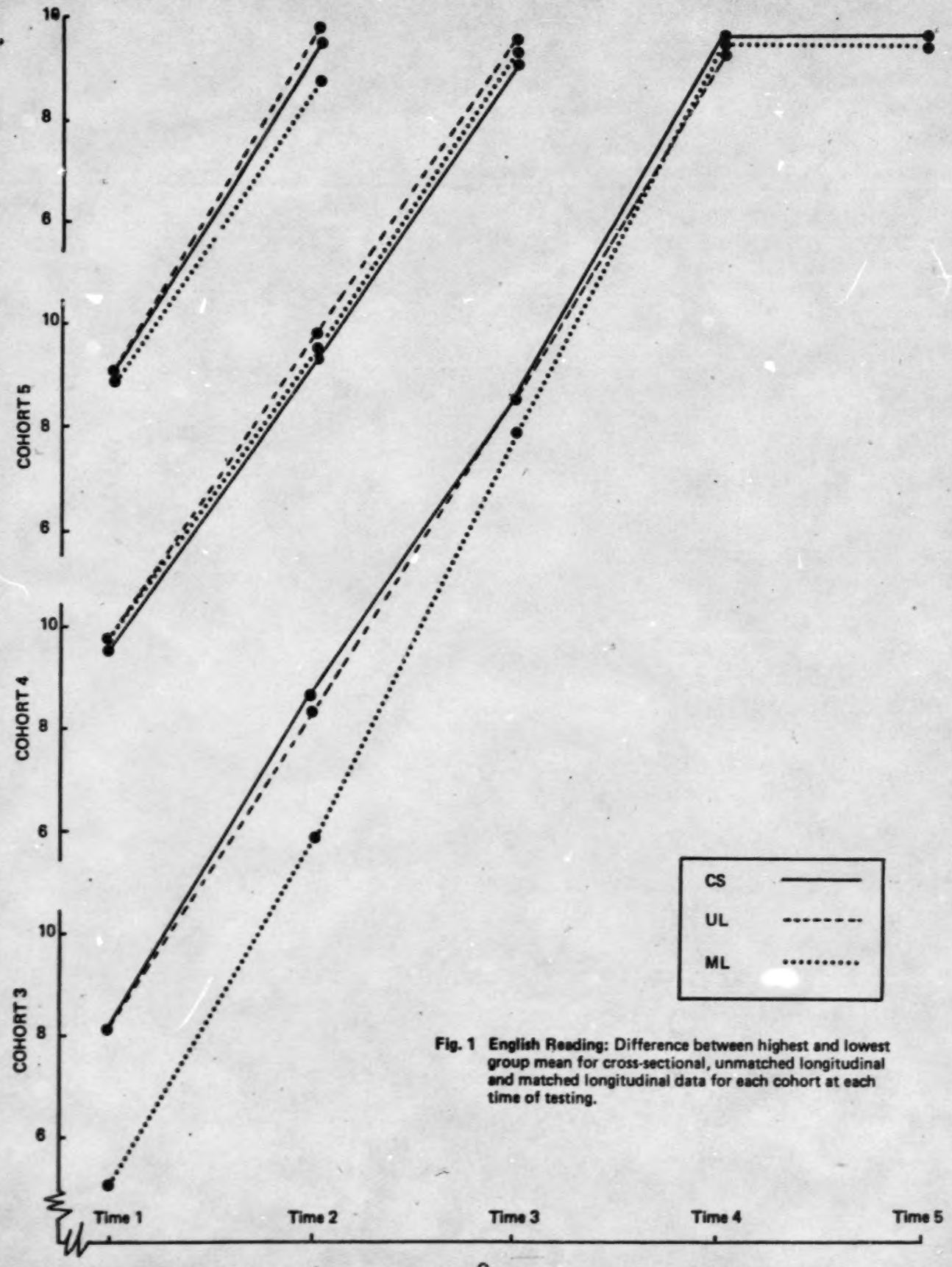

Fig. 1 English Reading: Difference between highest and lowest group mean for cross-sectional, unmatched longitudinal and matched longitudinal data for each cohort at each time of testing.

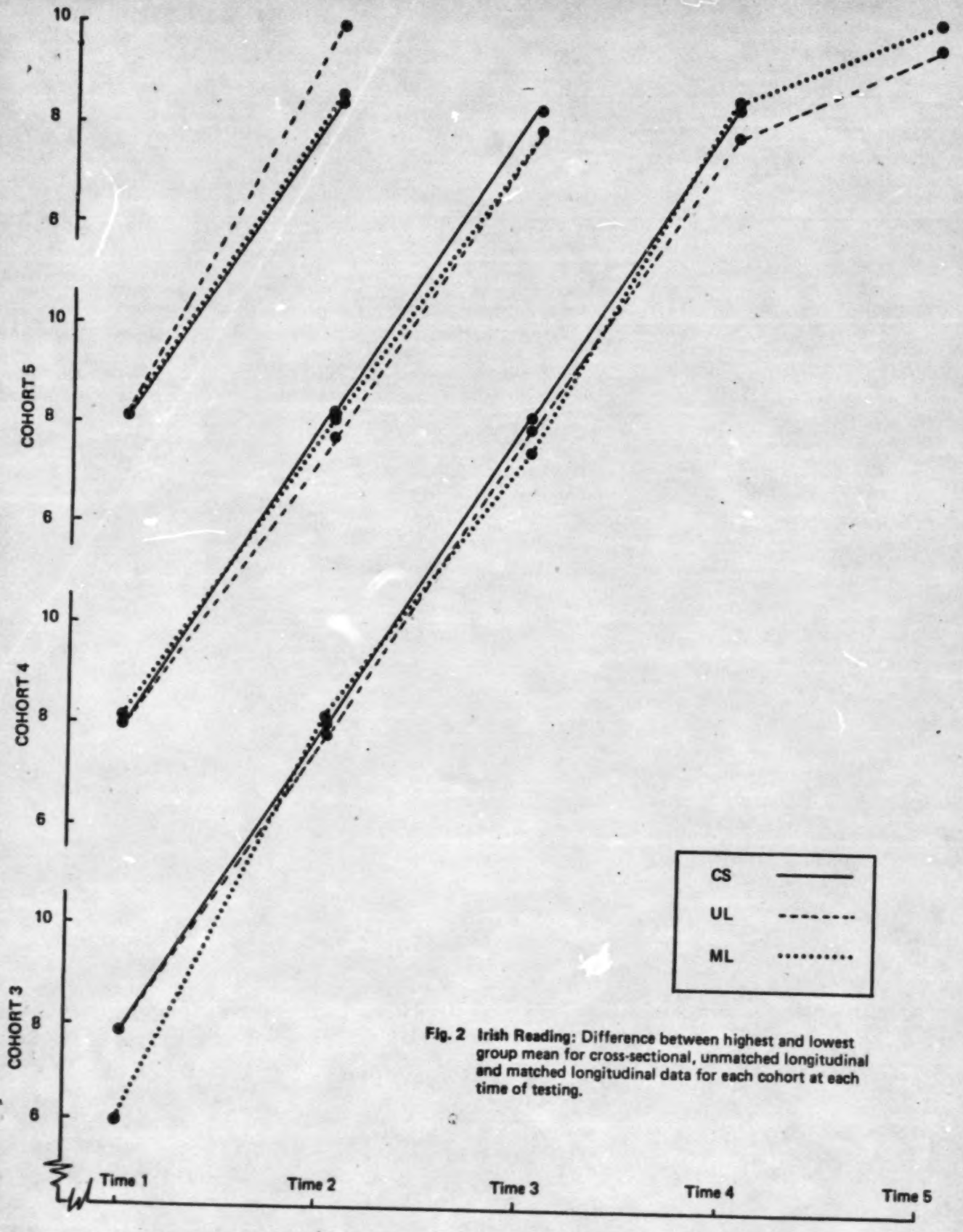

Fig. 2 **Irish Reading:** Difference between highest and lowest group mean for cross-sectional, unmatched longitudinal and matched longitudinal data for each cohort at each time of testing.

TABLE 1

English Reading Attainment - Mean reading scores for each social-class group for cross-sectional (CS), unmatched longitudinal (UL) and matched longitudinal (ML) data.

Time of Testing

CS and UL

	Group	Time 1	Time 2	Time 3	Time 4	Time 5
	I	104.39	104.66	104.98	105.65	105.47
Cohort 6	II	99.79	98.55	100.54	101.36	101.58
	III	95.05	95.10	95.05	96.62	96.08
	I	105.14	104.92	105.55		
Cohort 5	II	99.07	99.47	100.45		
	III	96.00	95.12	96.40		
	I	104.98	104.59			
Cohort 4	II	99.67	99.75			
	III	95.59	95.83			
	I	105.20				
Cohort 3	II	100.02				
	III	96.80				

ML

	Group	Time 1	Time 2	Time 3	Time 4	Time 5
	I	104.67	105.26	105.39	104.22	103.91
Cohort 6	II	99.99	99.10	100.62	100.84	101.78
	III	95.26	96.62	95.80	95.07	94.72
	I	105.80	105.20	103.42		
Cohort 5	II	99.01	99.76	101.12		
	III	96.86	95.90	95.27		
	I	106.30	103.82			
Cohort 4	II	100.95	101.94			
	III	97.02	97.81			
	I	103.13				
Cohort 3	II	103.13				
	III	98.01				

TABLE 2

Irish Reading Attainment - Mean reading scores for each social-class group for cross-sectional (CS), unmatched longitudinal (UL) and matched longitudinal (ML) data.

Time of Testing

CS and UL

	Group	Time 1	Time 2	Time 3	Time 4	Time 5
	I	104.75	105.48	103.94	106.60	106.30
Cohort 6	II	98.36	98.67	98.67	100.63	100.40
	III	95.92	95.70	95.98	98.82	96.77
	I	105.44	103.62	105.22		
Cohort 5	II	98.64	98.12	99.81		
	III	97.23	96.17	97.25		
	I	104.19	105.39			
Cohort 4	II	99.05	99.68			
	III	96.31	97.82			
	I	104.95				
Cohort 3	II	100.16				
	III	97.15				

ML

	Group	Time 1	Time 2	Time 3	Time 4	Time 5
	I	104.75	106.19	104.58	103.94	104.34
Cohort 6	II	98.36	99.15	99.25	99.79	99.40
	III	95.92	97.31	96.62	94.94	93.80
	I	105.91	104.62	102.45		
Cohort 5	II	99.36	98.40	99.41		
	III	97.65	96.48	95.46		
	I	105.64	105.91			
Cohort 4	II	100.29	102.65			
	III	97.59	98.00			
	I	105.32				
Cohort 3	II	102.48				
	III	99.73				

TABLE 3

Numbers of Children at each Testing Session by Standard and Year of Testing for English and Irish Reading

(Numbers in parentheses are for matched longitudinal data).

	Winter 73-74	Autumn 74	Autumn 75	Autumn 76	Summer 77
English	3794(3794)	2159(1845)	2629(2021)	2471(619)	2374(619)
Irish	3734(3734)	2092(1763)	2626(2062)	2494(575)	2382(575)
English	3697(1845)	2829(2021)	2664(619)		
Irish	3800(1763)	2801(2062)	2665(575)		
English	3806(2021)	1852(619)			
Irish	3811(2062)	1846(575)			
English	4009(619)				
Irish	3931(575)				

TABLE 4

Percentage of variance accounted for covariate, independent variable, and covariate - I.V. interaction for English and Irish reading attainment.

		Time of Testing			
		English Reading			
		Time 2	Time 3	Time 4	Time 5
Cohort 5	cov.	62.44*	30.61*	46.16*	37.25*
	I.V.	0.28	0.35	3.31*	3.68*
	cov. x I.V.	0.13	0.33	0.46	1.21
Cohort 4	cov.	64.37*	60.60*		
	I.V.	0.23	1.66*		
	cov. x I.V.	0.11	0.06		
Cohort 3	cov.	65.65*			
	I.V.	0.39			
	cov. x I.V.	0.20			
		Irish Reading			
Cohort 5	cov.	62.66*	25.30*	37.72*	35.81*
	I.V.	0.24	0.31	3.10*	4.96*
	cov. x I.V.	0.37	0.30	0.11	0.27
Cohort 4	cov.	62.44*	45.80*		
	I.V.	0.28	1.49		
	cov. x I.V.	0.13	0.03		
Cohort 3	cov.	26.68*			
	I.V.	0.25			
	cov. x I.V.	0.59			

* Indicates a significant difference at the 5% level.

TABLE 5

Summary of significant results from Cohort 3.
Adjusted social-class group means, expressed as deviations from the grand mean.

	Group	Irish	English
Time 5	I	2.83	2.58
	II	0.21	0.88
	III	-2.05	-2.38
	Range:	4.88	4.96
Time 4	I	1.70	2.21
	II	-0.62	0.38
	III	-0.69	-1.82
	Range:	2.39	4.03
Time 3	I	-	1.80
	II	-	0.34
	III	-	-1.48
	Range	-	3.28